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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,457	07/29/2003	Kayoko Shibata	P/126-222	9037
2352	7590	05/17/2005		EXAMINER NGUYEN, DANG T
OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403			ART UNIT 2824	PAPER NUMBER

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	PM
	10/630,457	SHIBATA ET AL.	
	Examiner	Art Unit	
	Dang T. Nguyen	2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 14 February 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 2-7 and 9-15 is/are allowed.
 6) Claim(s) 1 and 8 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 29 July 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input checked="" type="checkbox"/> Other: <u>Search history</u> . |

DETAILED ACTION

1. This office action is in response to applicant's final amendment filed on 04/08/05. Claims 1, 2, 8, 9, and 14 have been amended. Claims 1 – 15 are pending on this application. Claims 1, 2, 8, 9, and 14 are independent claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 8, are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaba et al. U.S. Patent No. 6,411,539 B2 – filed: Mar. 12, 2001 in view of Park et al., U.S. Patent No. 6,480,409 B2 - filed: May 16, 2001.

Funaba disclosed every aspect of applicant's claimed invention except for a bus is located on the memory module and a terminating resistor is being part of the memory module.

Fig. 3 of Park discloses a bus [10] which connects the memory chip [31, 32, 33, 34] to the pin [35] and which is located on the memory module [30] and a terminating resistor [Rterm] connected to one end of the bus [10] is being part of the memory module.

Funaba and Park et al. are common subject matter for memory system. Therefore it would have been obvious to one having ordinary skill in the art at the time

the invention was made to incorporate Park's terminal resistor and bus into Funaba's memory module, since Park taught the benefit by pointing out that the number of bus lines of the memory chip increases, the number of memory module pins connected to the bus lines also increases. This generally increases the size of the memory module (Column 1 lines 52-61).

Allowable Subject Matter

3. Claims 2 – 7 and 9 - 15 are allowed.
4. The following is an examiner's statement of reasons for allowance:

With respect to claims 2 and 9, in addition to other elements in the respective claim, the prior arts '539' and '409' as applied to claims 1 and 8 above teach a memory module having a stab resistor connecting between one end of the bus line and the pin, and other end of the bus line is connecting to a terminating resistor. However '539' and '409' fail to teach or suggest "wherein the stab resistance (Rs) and the terminating resistance (Rterm) are given by: $Rs = (N - 1) \times Z_{effdimm}/N$ and $Rterm = Z_{effdimm}$; where N represents the number of said connectors; and Zeffdimm represents effective impedance of a memory chip arrangement portion consisting of the bus and the memory chip".

With respect to claim 14, in addition to other elements in the claim, the prior arts '539' and '409' as applied to claims 1, and 8 above teach a memory module having a stab resistor connecting between one end of the bus line and the pin, and other end of the bus line is connecting to a terminating resistor. However '539' and '409' fail to teach

wherein the stab resistance (Rs) and the terminating resistance (Rterm) meet an equation of: $Z_{mb} = (Rs + Z_{effdimm}) / N$; where Z_{mb} represents wiring impedance of said motherboard; $Z_{effdimm}$ represents effective impedance of a memory chip arrangement portion consisting of said bus and said memory chip; and N , the number of said memory modules.

Prior art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dillon et al. Patent No.: US 5,578,940 Date of Patent: Nov. 26, 1996

Hajeer Patent No.: 5,524,232 Date of Patent: Jun. 4, 1996

Contact Information

6. Any inquiry concerning this communication from the examiner should be directed to Dang Nguyen, who can be reached by telephone at (571) 272-1955. Normal contact times are M-F, 8:00 AM - 4:30 PM.

Upon an unsuccessful attempt to contact the examiner, the examiner's supervisor, Richard Elms, may be reached at (571) 272-1869.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is (703) 305-3900. The faxed phone number for organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the Status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC@uspto.gov.

Dang Nguyen 5/3/2005


VAN THU NGUYEN
PRIMARY EXAMINER